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द्रवचालित पम्पों के कार्यकारिता आँकड़ों के प्रस्तुतीकरण की विधि

Indian Standard

METHOD FOR PRESENTING PERFORMANCE DATA FOR HYDRAULIC PUMPS

ICS 23.100.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

December 1998

Price Group 1

Hydraulic Fluid Power Systems Sectional Committee, PE 15

FOREWORD

This Indian Standard was adopted by the Bureau of Indian Standards, after the draft finalized by the Hydraulic Fluid Power Systems Sectional Committee had been approved by the Production Engineering Division Council.

In hydraulic fluid power systems, power is transmitted and controlled through a liquid under pressure within an enclosed circuit. Pumps are components which convert mechanical power into fluid power.

Positive displacement pumps have internal sealing means which makes them capable of maintaining a relatively constant ratio between rotational speed and fluid flow over a wide pressure ranges. They generally utilise gears. vanes or pistons. Nonpositive displacement pumps such as centrifugal or turbine types are seldom associated with fluid power systems.

Pumps are available as fixed or variable displacement types. Fixed displacement pumps have pre-selected internal geometries which maintain a constant volume of liquid passing through the pump per revolution of shaft. Variable displacement pumps have means for changing internal geometry so that volume of liquid passing through the pump per revolution of the shaft can be changed.

The object of this standard is to ensure uniformity in style and presentation of performance data for hydraulic pumps. The performance data is to be given in the trade and technical literature of the pump by the manufacturer. which will be useful to the consumer/purchaser in selection of the pump. This standard has been prepared based on the engineering practices followed in the fluid power industry.

Indian Standard

METHOD FOR PRESENTING PERFORMANCE DATA FOR HYDRAULIC PUMPS

1 SCOPE

This standard provides a method for presenting the following performance data for rotary positive displacement hydraulic fluid power pumps used in industrial, mobile and marine applications in order to incorporate the same in trade and technical literature.

a) Output flow,

b) Power input, and

c) Overall efficiency.

2 REFERENCES

The following standards contain provisions which through reference in this text, constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS No.	*Title*
10069 : 1992	Hydraulic fluid power — Positive displacement pumps, motors and integral transmission — Determination of steady — State performance (*first revision*)
10416 : 1992	Fluid power systems and components — Vocabulary
12597 : 1988	Recommendation on units for fluid power system

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 10416 shall apply.

4 DATA PRESENTATION

4.1 The following basic information shall be provided when presenting pump performance in accordance with this standard. The units of various quantities shall be in accordance with IS 12597.

a) Manufacturer's name;

b) Manufacturer's identification of pump that is model code;

c) Serial number and month and year of manufacture;

d) Volumetric displacement, cm^3/rev;

e) Geometric displacement, cm^3/rev;

f) Shaft speed range (Minimum and Maximum), rpm;

g) Maximum allowable operating pressure and rated pressure, bar;

h) Maximum input-power, kW;

j) Type of fluid, viscosity range and filteration level, m/sec;

k) Fluid operating temperature range, °C;

m) Inlet pressure range in bar;

n) Direction of rotation as viewed from shaft end;

p) Power at max pressure at zero outlet flow at various speeds in case of variable displacement pumps; and

q) Maximum noise level, dB.

4.2 The performance data shall be as presented at fluid temperature of 50°C with recommended fluid in the graphic form similar to that shown in the following figures, however tests shall be carried out as per IS 10069.

a) Output flow *versus* shaft speed at constant pressure (Fig. 1)

b) Input power *versus* shaft speed at constant pressure (Fig. 2)

c) Overall efficiency *versus* shaft speed at constant pressure (Fig. 3)

5 CONFORMANCE STATEMENT

The following statement shall be given in the catalogue and sales literature when selecting to comply with this standard.

Method of presenting performance data conforming to IS 14601.

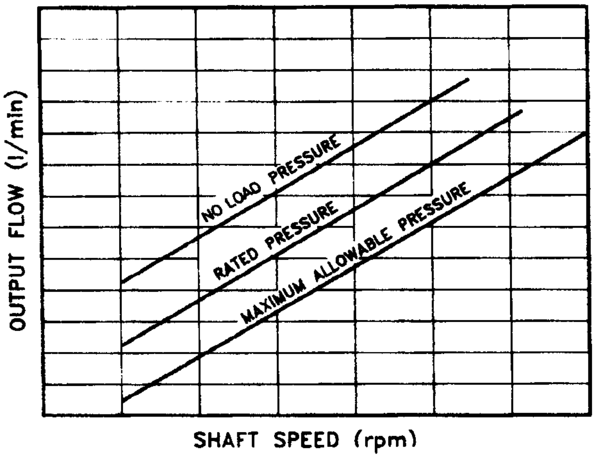

FIG. 1

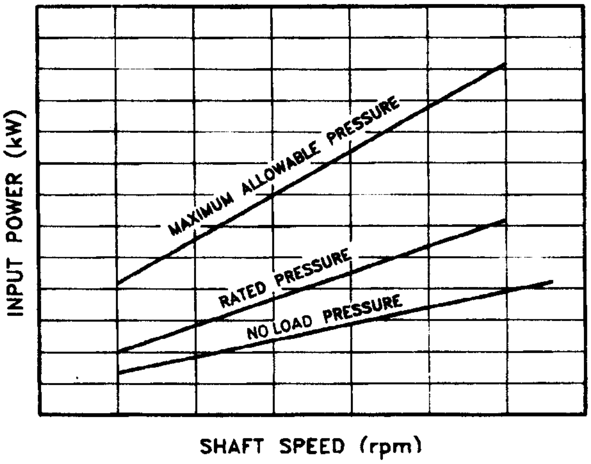

FIG. 2

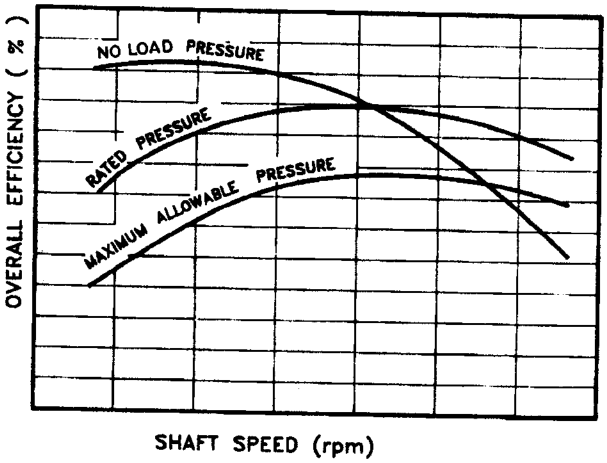

FIG. 3

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